Scientific American.

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USEFUL RECEIPTS.

To Remove Chemical Marking Ink Stains from Linen.

Nitro-muriatic acid has been recommended for this purpose, but, without entering into the obvious demerits of this agent, which is neither fitted for general use, nor suited for cambric or fine linen, Boettger proposes a concentrated solution of Liebig's cyanide of potassium as a sure and harmless means of removing the stain of marking-ink from linen textures. In the preparation of this salt, it is essential that the ferrocyanide be as free as possible from the sulphate of potash, to prevent the generation of a combination with sulphur during the process of heating, which would entirely defeat the object. Names and marks on linen and wearing apparel, of many years standing, may be totally and effectually removed from the finest cambric, even without the slightest injury to the texture, by rubbing the marking gently with a rather concentrated solution of oxalate of potash. The red and black stains produced on the skin, by the solution of the salts of silver and gold, may be perfectly removed by a solution of the above mentioned salt. It is necessary, however, that the skin should be intact, as this salt produces ill effects if applied to open sores.

Legumin Cheese.

The Chinese prepare an actual cheese from peas, called "tao-foo," which they sell in the streets of Canton. In preparing this cheese, the paste from steeped ground peas is boiled, which causes the starch to dissolve with the casein. After straining the liquid it is coagulated by a solution of gypsum. This coagulum is worked up like sour milk, salted, and pressed into moulds to make cheese.

Florida Paint Root.

This root grows in great abundance in the flat woods, near the streams, and in the savannahs of the counties of Levy, Marion, and South Florida. It has a top similar to the flag, and a root about the size of a man's thumb, of various lengths, running horizontal, not far below the surface. It is very juicy, and of a deep red color. Hogs are exceedingly fond of it, and fatten on it rapidly, if they are black, or have black hoofs. It is said by the old settlers that hogs with white hoofs seem to founder, and their hoof comes off, which causes them to perish unless fed well till they recover. Even when the animal has only one white hoof, and the others black, the white hoof comes off. The root colors the flesh, bones, and marrow, of hogs that feed upon it, and the urine becomes of the color of blood. There is no doubt this root may be substituted for madder, and become a source of no inconsiderable traffic to the people of Florida. Like the arrow root or compta—it grows spontaneously in great abundance and may be cultivated, if thought advantageous.—[Ocala (Fla.,) Mirror.

Little can be done without determination, and no great acquirement without patience and steady application.

SHIP'S SPEED INDICATOR.

Figure 1.

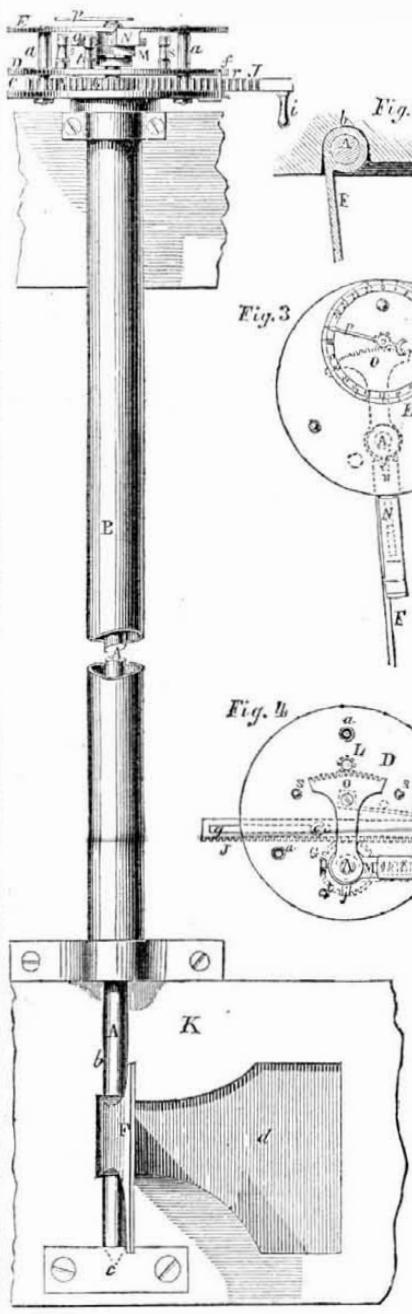
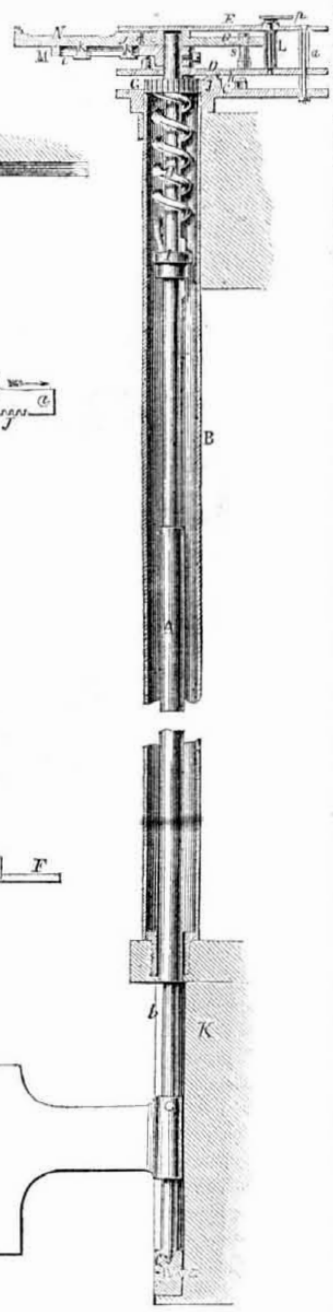


Figure 2.



The annexed engravings are views of an instrument for indicating the speed of ships at sea, or boats on a lake or river, invented by I. Z. A. Wagner, of the city of Philadelphia, who has taken measures to secure a patent. Figure 1 is a side view of this instrument; figure 2 is a vertical section of the same taken through the centre across the vessel; figure 3 is a top view of the same; figure 4 is a top view with the dial plate removed; figure 5 is a horizontal section of the vane, and a part of the keel of the vessel, showing the recess in which the vane is received, when the instrument is not in use. The same letters refer to like parts.

This instrument is a fixed and permanent spring log consisting of a Vane attached to some part of the vessel below the water line, and with a spring attached to it with its tension acting in an opposite direction to that in which it is influenced by the water while the vessel is sailing. This vane is connected with an indicating apparatus which may be placed in the cabin or on the quarter deck, and which tells the speed of a vessel by a pointer moving round on a dial.

A is the spindle of a vane, F; B is a tube in which is enclosed the said spindle. The length of tube and spindle should be from the bottom of the vessel to the cabin or deck, where the dial and indicating parts are to be situated. The tube terminates with a water-tight joint at the bottom; C is a circular plate on its upper end forming the base of the indicator and firmly secured to it. This plate supports two other plates, D E, of similar size and form, by means of pillars, *a a*. these three parts form the frame for the indicating mechanism. A recess, *b*, is made in the side of the keel, K, of the vessel, to receive a part of the spindle, A, not confined in tube, B. The bottom of the spindle rests in a step, *c*, within the keel, and its upper end works through a guide bearing in plate, D; it is further held steady by a guide to the bottom of the tube. The vane, F, is secured to the protruding part of the spindle, and when it is not in use (the vessel being in port or sailing) it is received into a recess, *d*, in the keel, (as shown in figure 1.) abaft the shaft. A toothed pinion, G, is fitted to plate, C, and is capable of turning freely. This pinion is supported by the said plate, which is slightly recessed to receive it, and is connected by a strong spiral spring, H, which surrounds the spindle with a collar, I, which is fitted to the spindle or shaft, A, at some distance below the pinion, in such a manner as to slide freely up and down, but not to turn. The spring is coiled in such a direction that if the pinion were held stationary, the influence which the vane receives in passing through the water would wind it up. The toothed pinion, G, gears with a rack, J, which is movable on the plate, C, to which it is connected by a screw, *e*, passing into the plate, and a loop, *f*, secured to the edge of the plate; a slot, *g*, is made in the rack to receive the screw, *e*. and allow of the longitudinal motion of the rack. The loop, *f* is just wide enough to allow the rack to pass through it freely, but a spring, *h*, is secured to the plate, C, and applied to the back of the rack in such a manner as to force its face against one side of the loop, which is thus made to enter a space between two teeth, and will hold the rack firm in any position.

When the log is in use it occupies a position nearly at right angles to the keel. The vane is brought into position for action by drawing the rack towards the right (as in fig. 3.) by a handle, *i*, provided for the purpose. The rack, J, being held by loop, *f*, holds the pinion in such a way that it cannot turn, hence the vane cannot move without winding or unwinding spring, H. The indicator dial is described upon plate, E, and the pointer, *p*, is attached to the upper journal of a toothed pinion, L, which works between the plates, D and E. The movements of the vane are transmitted to the indicator by an expanding lever, M, which has a toothed sector, O, at one end gearing with the pinion, L. That part of the lever which carries the sector is loose upon the spindle of the vane, so that it can be released when desired; it is also furnished with a tongue, *j*, by which it is connected with the other portion of the lever. The part, M. is firmly secured to the vane spindle and a piece, N, is fitted to slide longitudinally on it, being confined by studs, *k k*, working in a slot, *l*. The inmost end of the piece, N, has a notch, *n*, to receive the tongue, *j*, of that part of the lever carrying the sector, O. When the the tongue is in this notch, the indicator is in communication with the vane, but when the piece, N, is withdrawn far enough to leave the tongue, *j*, free, the indicator is released; stops, *s s*, are secured in the plate, D, to prevent the sector working out of gear with the pinion, and the indicator thereby losing its proper relation to the vane. A stop, *t*, is secured in the same plate to prevent the lever, M, being forced by the spring, H, or the action of the water upon the vane, to such a position as to carry the pointer backwards past the zero point on the dial.

To take an observation to determine the speed of a vessel through the water, the rack, J, requires to be drawn out (as in fig. 3) to such a position nearly at right angles to the keel; also when the indicator is connected, the spring, H, will be free from tension at ° or zero point on the dial. The rack, J, is secured in this position, either by the side of the loop engaging between two of its teeth, or by a pin inserted through it close to the edge of plate, D, to prevent it moving inwards. The sector is then connected with the lever, M, by sliding the piece, N, to make it receive the tongue *j*, in its notch. The resistance encountered by the vane in passing through the water will be in proportion to the speed of the vessel, and will cause the vane to turn its spindle, and wind the spring, H, to such a tension as will exactly balance the pressure on the vane, when all the parts of the instrument will become stationary. The pointer will then indicate the speed of the vessel in knots per hour, according as the dial is laid out. When the observation is made, the vane can be turned back in its recess. The vane can also be properly adjusted to indicate the velocity of favorable or adverse currents, when the force of said currents is known. It can easily be attached to any vessel, and is both a neat and ingenuous instrument for the purpose intended.

More information may be obtained by letter addressed to the inventor, No. 29 Arch street, Philadelphia.

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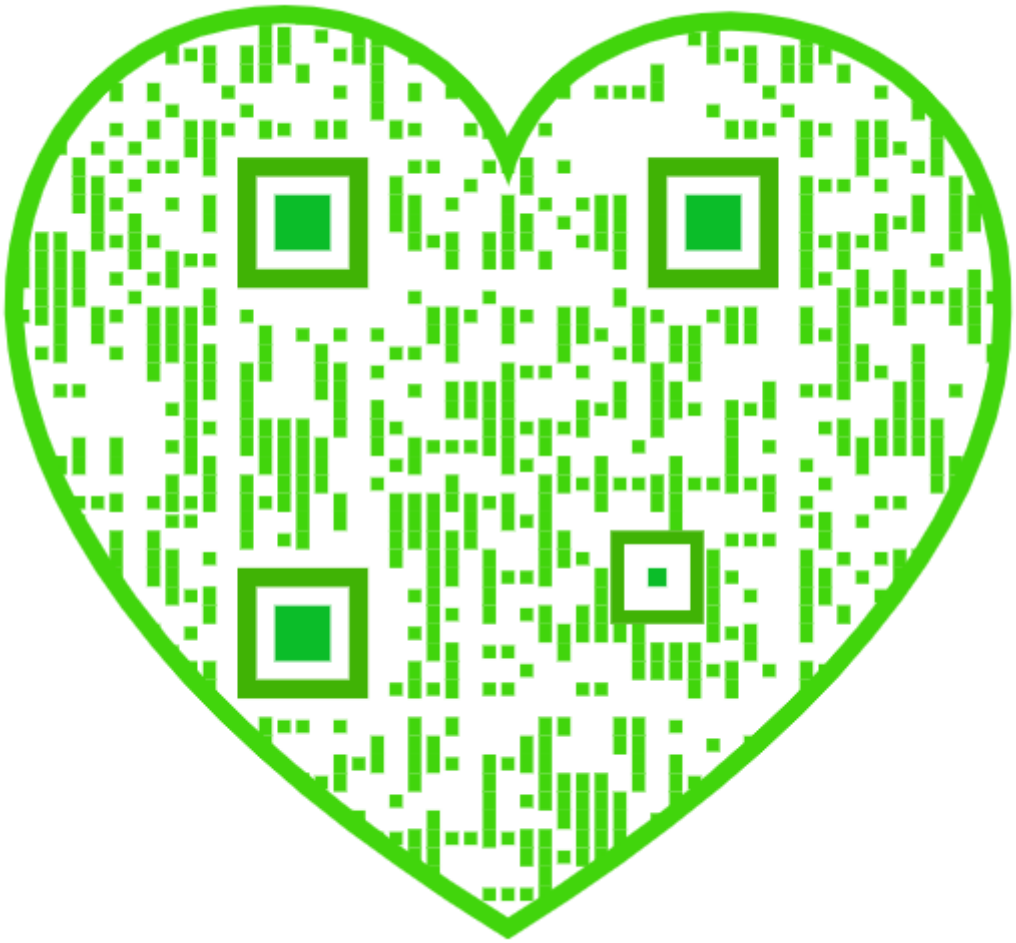

MISCELLANEOUS.

Inventors—The Scientific American.

The objects of mechanical inventions are to furnish the comforts and conveniences of life, and this object has been accomplished successfully in most of the departments of mechanism. Inventors have done much, but it is their duty to do more; we are far from having approached that perfection which is attainable; the field for improvement is a great field, it is yet unbounded, and we have no doubt but inventors will yet change nearly the whole face of the mechanical world. They are a class of men whose perseverence and energy are alike notorious; their business is like digging for gold, and their work like that of the miners—some valuable improvements being the result of accidental discovery, but a far greater number requiring a great ammount of thought and experiment. before they are brought before the public Bacon says—"Antiquity attributed divine honors to inventors, but conferred only heroic honors upon those who deserve well in civil affairs, for the benefits of inventions extend to all mankind, but civil benefits only to particular countries; and these civil benefits seldom descend to more than a few ages—whereas inventions are perpetuated through all time." And Dr. Herschel remarks, "that any accession to our knowledge of nature is seen sooner or later, to make itself felt in some practical application. And a benefit conferred on science by the casual observation or shrewd remark of even an unscientific or illiterate person infallibly repays itself with interest though in a way that might never at first have been contemplated."

He should be deemed as great a benefactor who brings into existence an article or machine which will make us wiser or happier, as he who confers a benefit upon the community in any other way. But inventors owe a duty to themselves, while they benefit the world, for many valuable improvements which have cost them hours of toilsome mental and perhaps physical labor, have been appropriated to public use, and the inventor left without the least remuneration for his services. We believe "the laborer is worthy of his hire," —and he is not the less entitled to it who labors for the general good in the field of invention, instead of laboring for individual advantage. Our laws have given to inventors an opportunity of protecting themselves and obtaining a remuneration for their services, and they should do it; but to secure their rights they must seek to protect them in season—as soon as their inventions are complete, or even as soon as valuable ideas are conceived, is the time to claim their protection; we shall render inventors all the aid in our power in perfecting their inventions by imparting to them the requisite information, and in protecting them from piracy. The increased circulation of the Scientific American renders more attention to this department of our business indispensable, but notwithstanding this, we are still fully prepared to carefully examine every case that comes under our superintendence The number of examinations of new inventions has also increased so as to require an additional examining force in order to attend promptly to all the numerous cases under our charge. No case is, however, permitted to leave the office until it has passed the ordeal of our criticism. This is perhaps one of the principal reasons of our great success in obtaining Letters Patents for new inventions We sometimes fail, but never for want of that care with which business of this kind must be transacted. This extensive Patent Office business enables us to furnish the readers of the Scientific American with a great amount of valuable information.

Our readers are aware that we labor for their interests, and they in turn labor for us. A long list of subscribers is frequently forwarded to us, with the assurance of approbation and many thanks for the Scientific American, which weekly finds its way to their homes and firesides, loaded with new improvements, new illustrations, and suggestions, in short, all that is valuable collected from our immense resources, the whole scrutinized, criticised, and prepared for practical application. We have every inducement to prosecute our enterprize with energy, to make the Scientific American the repository of science and truth, and a journal of correct information in regard to the mechanical news of the day—a publication which dare speak out and expose humbugs, inconsistencies, and false theories, of which the present age is remarkable, as well as remarkable for its great improvements and discoveries.

Recent Foreign Inventions.

Hat to Fit every Head.—Andrew Fulton, of Glasgow, patentee.—This improvement consists in adapting to hats, helmets, and other coverings for the head, a flexible padded lining which adapts itself readily to the exact contour of the head of the wearer, and thus secures a good fit, while it also ensures all the ease and comfort derivable from the wearing of an easy cap. The lining is held to the sides of the head by gentle springs and does not come so close to the interior, but that a space is left at certain parts for the admission of air for ventilation.—[London Mechanics Magazine.

[We commend this subject to the attention of our hatters, it is an invention of a most desirable character, and the hatter who first introduces such an improvement among us should, and no doubt would, receive a very liberal patronage.

Improved Process for Refining Gold.—A patent has been recently taken out by Mr. Petrie, of London, for an improvement in what is termed the "parting" process by refiners, and which is said to promise very important results. The refiners alloy, consisting of one part impure gold and three parts silver, granulated in the usual manner, is placed in a number of small cells or cylinders, placed upright on an incline, between two parallel rails, which may, if desired, form flues, whereby the cells are warmed while in action—Hot nitric acid is kept continually dropping from a tap into the highest cell, and having passed through the mass of alloy, and through a false bottom, ascends on the other side of a diaphragm, and overflows into the next cell; from thence it flows into all the cells in succession. From time to time the upper cell is removed, and another, containing fresh alloy, is placed at the bottom of the series, the whole being moved up the incline. By the time the nitric acid reaches the granular surfaces, and as each cell is raised it comes constantly in contact with more energetic acid, until, on arriving at the top, and before removal, the whole is dissolved, and the gold left pure in a spongy state. There is also an arrangement for condensing the nitrous fumes, which are conducted by stoneware tubes through an apparatus called a gas collector into an oxidator. They are afterwards drawn off by pneumatic suction, are condensed into fresh strong nitric acid, which flows out in a continuous stream for further condensation, or for immediate use.

Artificial Blocks for Hydraulic Purposes.—The material called hydraulic lime, generally used for engineers work under water, is a silicate of lime, in a somewhat nascent state. A discovery has been made by M. Berard, of Paris, of a most valuable process for manufacturing blocks for hydraulic purposes, and particularly submarine ones.—The commonest argil is employed by the inventor, which is a silicate, with a base of alumina; a block of any required dimensions is, therefore, constructed of unburnt bricks, taken from the field and stratified in layers, with the fuel on some piles of bricks forming a grating. An outer casing of unburnt bricks a short distance all round the block is filled with charcoal dust, the fire is placed at the base of the block, it soon rises, and heats the mass to a temperature which will soften argil, the contraction causes sinkings and vacancies, which must be filled up as they occur. When sufficiently burnt, the outer casings, which will then be burnt bricks, may be taken down, and the block removed to its destination. It will be seen that blocks may be made of any shape or size, having no limit but the possibility of carriage; and, when the operation is properly conducted, the solidity of the substance is remarkable; it requires great force to break them, iron instruments will not scratch the surface, steel scarcely mark them; and as concentrated nitric or sulphuric acid, or the most energetic alkaline solutions will not have the least effect on them, they will be indestructible under the action of sea or any other water.

Desilverization of Lead by Zinc.—Dr. Karsten, a German chemist, several years ago made some experiments with lead and zinc, and found that when a mixture of these metals was allowed to cool very gradually, lead with a minute trace of zinc was found at the bottom of the crucible, and zinc with a small amount of silver at the top. If the lead contained silver, it was almost entirely transferred to the zinc. Hearing that in Carmarthen silver is withdrawn from lead by means of zinc, he resumed his examination of the subject.

He found that silver may be entirely separated from lead by zinc, and that the following method gives the best results:—A tube of cast-iron 1½ inch in diameter is fitted to the crucible, so that the desilverized lead may be let off from the bottom. One end of this tube, dipping nearly to the bottom of the crucible, is furnished with a slide moving in grooves at the edge of the crucible, so that it can be shut when required by means of a rod. In this way the stream of melted lead may be regulated, and the fall of level gradual and uniform. In the crucible were put 25 cwts. of lead, containing seven-eighths of an ounce of silver to the cwt, and 4 cwt. of zinc. The whole was then fused, and stirred together for one hour at a bright red heat. This large amount of zinc was used because it was intended to attempt a process of concentration in which the same quantity of zinc should serve to desilverize subsequent charges of lead. After the stirring apparatus was withdrawn, and the melted mass kept for four hours at a red heat, the lead, perfectly freed from silver, was drawn off until only about 6 cwts. of metal remained in the crucible. To this residue a second 25 cwt. of zinc were likewise added, for reasons given below. A fourth, fifth, and sixth charge of lead were introduced and treated in like manner, 2 cwt. of zinc having again been added to the fourth charge. The lead drawn off, in each case, was entirely freed from silver.—But when a seventh charge was introduced without an addition of zinc, the lead, when drawn off, still retained silver to an extent of ⅝ths of an ounce to the cwt. The desilverizing of 150 cwt. of lead in this manner requires 8 cwt. or 5½ per cent. of zinc, a quantity differing widely from that indicated by former experiments—namely, 1½ per cent.

An addition of 1½ per cent. of zinc is quite sufficient for the perfect desilverization of lead when only one charge is worked. Thus 25 cwt. of lead may very well be freed from silver 42 lbs. of zinc, but the difficulty of separating the small quantity of argentiferous metal from the desilverized zinc is so great that this plan is not practicable. On the other hand, there is a certain limit to the size of the crucible, which cannot be exceeded, and recourse must, therefore, be had, to a process of concentration. The silver is separated from the lead very imperfectly, if twice or thrice as much zinc as is required for one charge of lead is added at once, with the view of making it serve for several charges. It is likewise imperfect when, on introducing into the crucible the several charges of lead, the 1½ per cent. needed for desilvering the lead is added with each charge. It, therefore, with reference to the above example, the first melting is made with 25 cwt. of lead, and 42 lbs. of zinc, the second, third, fourth, &c., charges (added to the residue in the crucible) must also consist of 25 cwt. of lead and 42 lbs. of zinc. The cause of the unfavorable result of the process attempted by the author lies in the necessity for stirring the melted metals The oxidation of the lead and zinc at the surface of the mass is very disadvantageous.

The argentiferous zinc obtained by this process always retains a portion of lead sufficient for the refining of the silver after the zinc has been separated from the mixture; and the alloy of silver and lead remains in the distillation muffle. If the per centage of lead is not sufficient for this purpose, more must be added, in order that in the distillation vessels the silver may be accumulated in the lead, which is afterwards cupelled. The distillation does not present any difficulties when suitable muffles are employed. The author had muffles constructed which, except a slit ¾ of an inch in diameter, were quite closed for a height of 4 inches from the bottom. The slit could be closed and re-opened in the usual manner, when the distillation being completed, it was necessary to draw off the remainining argentiferous lead. Such a muffle was charged for each distillation with 1 cwt. of the metallic alloy of zinc, lead, and silver. The product of four distillations of a mixture which, according to the most careful assays, contained 47¼ ozs. of silver, was 242 lbs. of lead and 44 9-44 of silver. The loss of silver amounted, therefore, to 3 1-22 oz.; this is owing chiefly to the scattering of small globules in the muffle, and it partly remains in the scum, from which it may be again recovered by subsequent distillations, washings, &c.

To Coat Iron with Tin.—The tin is first melted, with a stratum of chloride of zinc and sal ammoniac on its surface, and the iron or metal to be coated is immersed in the molten metal until sufficiently covered.

Great Industrial Railroad Excursion.

One of the greatest and most interesting industrial entertainments came off on Thursday, the 16th inst., which we have for a long time noticed. It was given by the distinguished firm of Rogers, Ketchum, & Grosvenor, of Patterson, N. J., to their workmen. This firm is the most extensive locomotive engine builders in the United States, and employ 800 hands steadily in the construction of engines, &c. There appears to be a kindly good feeling existing between themselves and their workmen, which should especially characterise all such manufacturing establishments. At the time of the said excursion, the numerous intelligent and hardy machinists, engineers, &c., had just completed a large and beautiful locomotive engine, one of the best upon the continent; it was got up with despatch, and in a manner so highly satisfactory, that the proprietors, upon its completion, proposed that the builders in person should make a practical test of its power and operation; nine cars were accordingly selected, to which the new engine was to be applied, and Mr. Hobbs, superintendent of the Union Road, placed in charge. The arrangements of the day were planned and carried out by the workmen of the company, and they were carried out with decided satisfaction. The procession repaired at an early hour to Congress Hall, the boarding place of Mr. Rogers, who was most enthusiastically greeted as the "Pioneer of New Jersey, in the locomotive line, and from thence to Jersey City."

The whole proceedings of the day evinced the most spirited, social and enthusiastic feeling which New Jersey perhaps ever witnessed. It was a great day for the mechanics of Paterson. It does us good to hear of a festival of this kind, as it speaks the feelings of the employers and the employed toward each other. Such generous noble acts are not lost to the company, they are duly appreciated, and will be returned four fold by diligence, enterprize, and confidence. Holidays of this kind might with advantage be much more frequent.

The locomotive first above referred to, was manufactured for the Camden and Amboy Railroad Company. The locomotive engine works of Rogers, Ketcham, & Grosvenor manufacture on an average two locomotive engines, and from twenty to twenty-five cars for passengers per week. This is an immense business, unequalled by any firm in the United States.

Notice to Engineers.

On our advertising page will be found an advertisement of an engineer who wants a situation. We know him to be a man of experience, well acquainted with marine engines, knows how to plan and construct them. For a long time he has superintended the construction of marine engines, especially those for propellers, respecting which his knowledge and experience are very extensive.

The New York and Erie canal enlargement is now to go on until completed—this canal has been in a half hanged state for ten years, owing to the machinations of interested parties.

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(For the Scientific American.)

Leather and its Interests.

Being a constant reader of your valuable paper, and feeling a great interest, a real pock et interest, in every thing relating to leather, —I read with more than ordinary interest, your article on this subject, in the Scientific American of the 4th inst. It has long been settled by one of the wise men of the world, I may say, reduced to an axiom, that ' there is nothing like leather." But what *is* leather? would seem to be a question yet to be solved. Webster defines it thus, "the skin of an animal dressed and prepared for use," which would seem to be plain enough, until you turn to his definition of "tanning," which is, "the practice, operation, and art of converting the raw hides of animals into leather by the use of tan," which would seem to imply that "tan" was an essential ingredient in the production of leather. This would seem to be Dr. Ure's idea, if I properly understand him, when he says, "it is the skin of animals, so modified by chemical means as to have become unalterable by the external agents which tend to decompose it in its natural state." If tan or tannic acid is an essential ingredient in the production of leather, you will readily perceive that it is a misnomer to call the "Preller" process of softening hides and skins "tanning." Indeed I have no hesitation in saying that "tawing" is a much better term, by which to designate the "Preller" process; as the vegetables you enumerate as constituting the compound used by him, have little or no tannic acid in them; the minerals none at all. Least I should be considered captious, I will change my remarks to what may more properly be considered, the merits of the question, pertaining to this Preller process. You say it is claimed that the leather produced by this process, is much stronger, and will wear much better." That the first half of the proposition, that hides and skins may be made tougher, by undergoing a process such as described, as that of Preller's, than if they were subjected to the ordinary tanning process, will not be denied by any one, who understands the art or mystery of tanning. No, it is an indisputable fact, that the raw skin is tougher than after it is manufactured into leather; that is, take two pieces of skin, of given width and substance, the one tanned and the other raw; and it will require a greater force to separate the raw than the tanned piece. So likewise is a piece of tawed skin tougher than a piece, of tanned skin; but that it will "wear better" for the ordinary purposes for which leather is used, will scarcely be admitted by so old a member of the "craft" as I am. No we profess to change the material upon which we operate, by chemical means, so as to render it less alterable by the external agents which tend to decompose it, in its natural state; in short, to make it "wear better."—The intelligent manufacturer and consumer wants something more than toughness in the quality of his leather—he wants suppleness, and the nearest approximation to imperviousness consistent with a condition to permit the ready escape of perspiration; that is, wants an article which, while it will let in the smallest amount of dampness, will offer the least obstruction to the escape of that which is in. He wants an article about equi-distant from india rubber and Indian dressed or tawed (not tanned) buckskin or buffalo robes, a mean which I do not believe Mr. Preller, or any one else, can obtain from the use of the materials designated in your article, as those used by him. While I shall be, or rather should be, much pleased, to hear of any real improvement, in the manufacture of leather, from an experimenter, upon the Preller process. I frankly confess that I do not for one moment anticipate such a result. S. S.

Dayton, Ohio, June, 1853.

[The author of the above has experimented a great deal in tanning, and is author of the patent process favorably noticed on pages 288 and 289, of Campbell Morfitt's work on the subject.

Old Northmen Relic.

A spoon about the size of a rather small table spoon, was lately dug up with some other articles near the head of a cove at New London, Conn, from a depth of fifteen feet; the original beach having been covered to that depth by successive washings from the surrounding hills. A New London paper says it is supposed that they were left there by the crew of a ship of some of the "Northmen" who visited and described the shores of Long Island Sound eight hundred or a thousand years ago. The spoon has been sent to the Connecticut Antiquarian Society, and they have pronounced it of Danish manufacture, a composition of bell-metal and gold. A heart and an arrow head that are on it are very perfect; there are also three other smaller figures that are scarcely distinguishable.

[For the Scientific American]

Natural Resources of Arkansas.

I noticed in your valuable paper of the 4th an article from a western pen, about a large quarry of granite, near Little Rock, Ark., and what I have to say in relation to it is, simply, to add to the story, what I know to be unknown to many:—Within 30 miles of Little Rock, is an extensive quarry of free stone of superior quality and while there in 1839, I saw some Scotch stone cutters cutting out several Ionic capitals for columns. I noticed that the stone under the chisel and mallet of a skillful workman could be finished into anything that was beautiful.

About 3 miles from Little Rock are several ridges or knolls, where I found an abundance of quartz of various sizes, sorts, and shapes; they were very clear, and a friend of mine sent some to Pittsburgh, to be set in rings, pins, and other articles of jewelry.

On the Ouichita River are extensive quarries of oil stone of superior quality, which brings a great price at present among our eastern mechanics; I have seen tons of them piled up in Little Rock for shipping.

At or near the well-known Hot Springs, some 40 miles from Little Rock, there is found in large quantities load stones or magnets. I used to amuse myself by dropping a small piece of this load stone into a cask of nails, and then take it out with nails hanging thickly on it. There are doubtless many kinds of minerals in Arkansas that have not yet been found. When the Great Central Railroad is completed, then the tide of emigration to that part of the unknown west will begin to flow and I have no doubt but we shall hear of the discovery of many valuable things that are now unthought of. P.

Reform our Railroad System.

A committee was appointed by the Legislature of Connecticut to examine into the cause of the sad railroad accident at Norwalk, made a report on the subject on the 7th inst. The conclusions of the committee coincide with the views we have taken of the subject, and attribute the cause of that accident more to a bad railroad system than to the inefficiency or bad conduct of any individual connected with the train which was precipitated through the opening of the draw bridge.—The committee have acquitted the engineer of any wilful act in producing the disaster, and plainly state that the danger was created in entire conformity to the express orders of the company. The signal, they believe, was not sufficient, and the train was run at a speed entirely unsafe.

The committee in their report also say, the public demand a rate of speed which on the road as originally constructed can scarcely be run with safety. The road was constructed too cheaply to warrant the highest rate of speed,—the grades are too heavy, the curves of too small radius, and the bridges are not of as permanent a character as they should be: a large outlay has been made for a double track, and still more is needed to remedy many defects in the original construction of the road, which the Committee are informed by the President, the Company now have under consideration. Another cause tending to produce this and other disasters is, the want of a thorough supervision of the road by its officers. So far as the Committee could ascertain, the whole duty of supervision is devolved upon Mr. Whistler, the Superintendent; they have the fullest confidence in his ability and fidelity, but say that the duties are too great for one man, and that the personal supervision of the President of the road would very much tend to insure proper obedience to rules on the part of employes, and reduce the chances of disasters. In conclusion the committee expressed the opinion that the weight of responsibility for the calamity must rest upon the company, for not guarding more securely against the dangers which were known to exist, and which were created by their own orders—against the negligence even of their own employees in such a place of danger. They say that considerations of a pecuniary nature should not operate to prevent care.

We believe that railroads can be built and trains run upon them at a velocity of 80 miles per hour with greater safety than they now can on the majority of our railroads, at the rate of 25 miles per hour. But our railroad companies are not blameable altogether for our present inefficient railroad system. It was difficult, and still is to obtain heavy subscriptions for the construction of railroads; monied men want a dollar to go farther with us than a pound in England, hence our cheap railroads. The daily papers of this city have been flooded with editorials and communications on the subject of railroad management since the Norwalk accident. We have not seen a really sensible article on the subject in one of them; every man seems to have his own favored panacea for the prevention of accidents, such as some new way of managing the signals, switches, or something else. The remedy for the evils of railroad accidents is well known to all who are practically acquainted with the subject; it is more money; and although it is very true, as the report of committee says, that the weight of responsibility for the accident must rest on the railroad company, and that considerations of a pecuniary nature should not operate to prevent care, we do say that some of the responsibility must also be thrown upon the people for allowing any railroad of inefficient construction, in fixed and rolling stock to go into operation. Single tracks should not be allowed; the rails should be heavier and better secured than they are upon any of our railroads; all the tracks should be fenced in, the bridges should be of the most substantial character, and every measure and means adapted to perfect our railroad system. Every good engineer knows exactly what is wanted and what should be done to make our railroads more safe; we wish that our monied men—the companies, could be made to feel more deeply on the subject.

The New York and New Haven Railroad is under the superintendence of George W. Whistler, Jr., a very able and competent engineer, and so far as public opinion was understood up to the time of the Norwalk calamity, we think it was decidedly in favor of its general management. We do not altogether agree with the report that the supervision of the president is strictly necessary, as the superintendent is assisted by a number of subordinates which necessarily leaves him more time to look after the weightier affairs of the road. Neither do we see the force of the clause in the recent bill of the Connecticut Legislature, which refers to the residence of the president, making it incumbent on him to live in Connecticut. What difference can it make at which end of the road he may happen to be located. There is something in this which appears unworthy of a legislative body; it looks as if some one had conceived a personal prejudice against Robt. Schuyler, for it does not seem to be applicable to any other individual acting in a similar capacity. Whether Robert Schuyler ought to be president of this particular road is not for us to say, but we can say that he is an able and efficient man, and is well acquainted with the railroad interests of the country.

An Alleged Wonderful Discovery.

The following article is copied from the "Boston Courier." We regard it as a serious duty, in giving place to it, to express the hope that no one will be thereby induced to rely upon its recommendations, except under the sanction of competent medical counsel. If the discovery be all that is claimed, it is most valuable to the human family, and its author will merit the gratitude of the world:

CURE FOR VIRULENT SMALL POX OR SCARLATINA AND MEASLES.—A merchant and ship owner of this city has had the following recipe sent him from England, where it was furnished by Mr. L. Larkin, member of the Royal College of Surgeons, and who vouches for it as a "medicine that will effect a revolution in the healing art, as regards the prevention and cure, not only of small-pox, but also of measles and scarlatina, however malignant the type, in a manner more efficient and extraordinary than could have been anticipated even by the most ardent philanthropist."

"On the first appearance of fever or irritation ushering in attacks, whether occurring in families or large communities, the subjoined mode of treatment should at once be entered on:—Take one grain each of powdered foxglove or digitalis (valuable in the ratio of its greeness—the dark should be rejected) and one of sulphate of zinc (this article is commonly known as white vitriol) These should be rubbed thoroughly in a mortar, or other convenient vessel, with four or five drops of water; this done a noggin (or about four ounces) more, with some syrup or sugar, should be added. Of this mixture a table spoonful should be given an adult, and two teaspoonfuls to a child, every second hour until symptoms of disease vanish.

Thus conducted, convalescence, as if by magic, will result. The rapidity of an event so auspicious will equally delight and astonish It may, however, be necessary further to note, that should the bowels become obstructed in progress of the disease (an evil by no means common) then a drachm of the compound powder jalap (formed of two parts cream of tartar with one of jalap) and one grain of the herb, treated as above, formed into a pastil with syrup or sugar, should be given to an adult, and halt the quantity to a child. This simple medicine shuts out every other form or article whatever, as totally unnecessary, if not pernicious.

The 'methodus medendi' of these medicines, capable of effecting results so gigantic, remain now only to be given, and appears to be as follows:—The herb, by its anti-febrile properties, lays hold at once of the fever, the prolific source of woe, which it immediately strangles, while the zinc acts the part of a tonic, instantly restoring the equilibrium."

Mr. Larkin adds:—"No emigrant or government vessel should hereafter be allowed to put to sea without a few pence worth of these protectors, and it is further ardently hoped that, as the dearest interests of our common humanity are so vitally involved in this discovery, the press of all countries will give publicity to this announcement."

[As this is an alleged discovery, we, as one of the press, have given it publicity, but in doing so, let us say that we do not place such dependence on its "fever strangling" powers, as its author would have us believe it possesses.

Change in the Fisheries.

Formerly Newburyport had an abundance of codfishermen, but the mackerel business was more inviting and more profitable, and as the cod declined, mechanical trades engaged a good share of the men, till now, very few remain. The old fishermen have died, and the young ones are in other pursuits; and this year at least three-quarters are obtained from the British provinces, and the spring fishing was in many instances abandoned, from the difficulty to obtain men. The number of vessels is being reduced by losses and sales, and no new ones take their places, and yet there is a failure of men.

The Provincials have learned from the Americans, and greatly improved in their fishing operations: if they remain as at present, and the Yankees are driven from their waters, they will have greatly the advantage, and the business must go to them.

Paper Making in North Carolina.

There are five paper mills now in operation in North Carolina, and another with a capital of $25,000, is in process of erection, about six miles from Raleigh. The two mills near Raleigh (the "Manteo" and the "Neuse" mills.) consume annually about one million and a half pounds of old rags; and the other four mills viz: at Fayetteville, Shelby, Lincoln and Salem, as much more—making 3,000,000 of stock used annually in North Carolina.

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NEW INVENTIONS.

A new Lathe for Turning Hollow Ware.

From the peculiar kind of cut required to turn hollow ware, no self-acting lathe has heretofore been successfully used for this kind of turning. It is commonly performed in a common lathe with a hand tool, and is very laborious, especially in turning ware of an oval form, where the hand of the workman must accommodate itself to the deviations of the surface, and be subjected to a constant jerking motion. The turning of hollow ware differs from most other kinds of turning, as the principle object to be attained is a clear bright surface; the ware is always made thin to save the weight of metal, and the portion turned off should be taken from all sides equally, even though the interior surface should be an irregular curve, the object being to remove the crust on the surface of the casting, so as to prepare it for the process of tinning.

The improvements made in these lathes are the invention of Peter Teal and Charles Tyler, of Philadelphia, Pa. The important features of their invention are in the manner of holding and operating the cutting tool, and in the chuck which secures the ware in the lathe. The cutter is self-feeding and self-adjusting, and is held in its place by an arm from a slide frame, upon the lathe. It is made yielding to accommodate itself to the inequalities of the surface of the ware by means of a coiled spring upon the frame, the depth of the cut being regulated by a guide roller following the cutter. The ware to be turned is held in a chuck of a peculiar construction. It is so arranged that the ware may be moved first with a circular motion for the purpose of turning the centre and bottom of the ware, and then gradually taking an oval or elliptical motion as the cutter proceeds toward the edge or top of the article to be turned. The motion may be kept circular when the ware is circular, and in both instances is self adjusting, no attention by the workman being requisite but to set the lathe for the kind of turning required.

Many parts of this lathe are too complex to describe without the aid of engravings, consequently we can here give but a limited idea of the invention, and its operation. Further information may be obtained of the assignees of the inventor, W. P: Cresson & Co., Philadelphia, Pa.

Anti-Friction Washer for Journal Boxes.

David A. Morris, of Pittsburg, Pa., has taken measures to secure a patent for an improved mode of constructing washers for reducing the friction between the shoulder of the journals and the boxes of the wheel. The invention is more particularly applicable to railroad cars, to prevent the excessive friction in turning curves; but it may be also applied to any kind of axle or shaft when it is required to avoid friction at the face of the box, upon the shoulder of the journal. The improvement consists in a washer fitting loosely to the journal between the shoulder and box furnished with a number of radial pivots, on which are placed friction rollers. When the axle is running free from pressure in a straight direction, this washer is left quite free, but when there is a tendency to press upon the shoulder, the rollers in the washer run between the surfaces of the shoulder and box, and tend to prevent the friction. By this method nearly all the friction is avoided.

A New Mode of Manufacturing Paint Brushes.

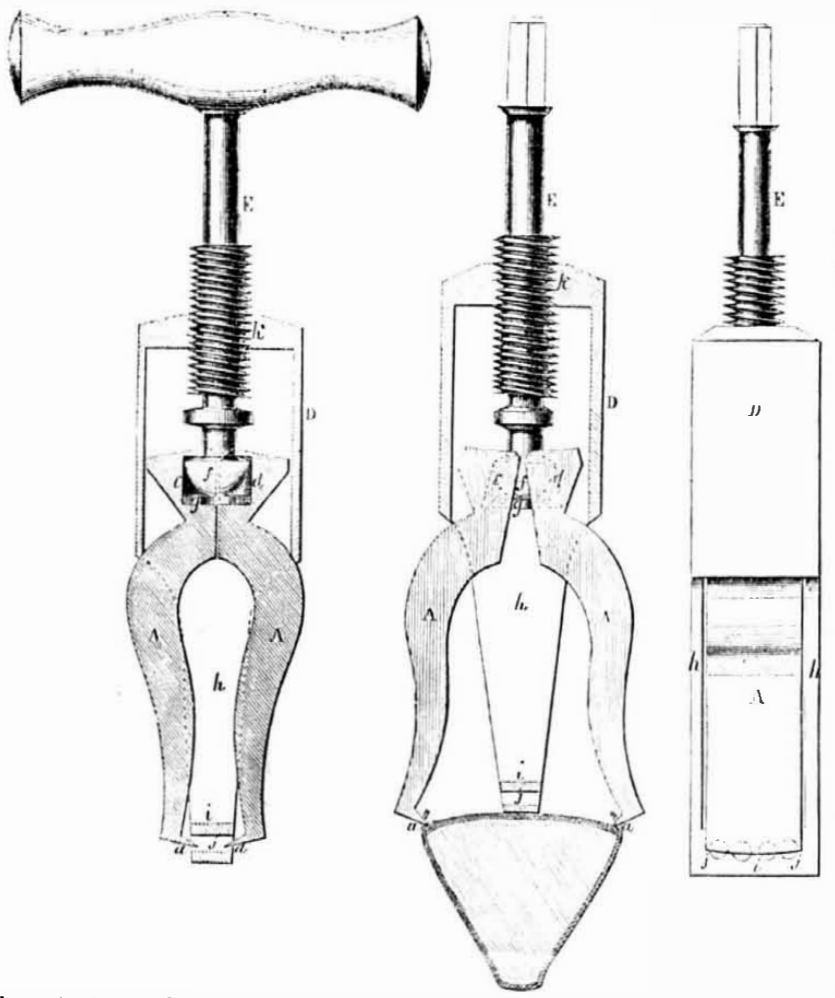
A very simple and effectual mode of manufacturing paint brushes, without involving the necessity of driving the handle through the centre of the brush, has been invented by Adonijah Randel, of Williamsburgh, N. Y. The nature of his invention consists in placing the hair of which the brush is to be made, in a metal ring, and securing it therein by cementing or sizing the roots, so as to prevent the escape of the hairs, and then uniting the back end of the ring by riveting or otherwise, with a back plate, which receives the handle. The hair is most effectually secured in this manner, and it forms a solid brush; it is easily constructed, durable, and more convenient than those in use. Measures have been taken to secure a patent.

APPARATUS FOR LASTING BOOTS AND SHOES.

The apparatus for lasting boots and shoes, represented by the annexed engraving, is the invention of R. P. Leland, of Grafton, Mass., who has taken measures to secure a patent for his improvement. Fig. 1 is an outside view of one edge of the laster. Figure 2 is a vertical central section of the same, the claw levers or holders being closed; and fig. 3 is also a vertical section through the box containing the claw, lever, spring, and screw. In this view said levers are shown open, as they appear when in operation.

A A represents the claw levers, which have the claws, *a a*, on their lower ends to take into the "uppers" in the manner shown in fig. 3. The upper part of these levers are made of the shape represented in figs. 2 and 3, so that when they have been forced out and opened, as shown in fig. 3, they will, when again drawn in, close and come together, as

Figure 1. Figure 2. Figure 3.



shown in fig. 2, and thereby stretch the leather and draw it over the last; these levers have mortices or recesses, *c d*, cut in their top portions, which form a box for the collar, *f*, (on the end of the screw) to fit in; also for a spring, *g*, as seen in fig. 2, by which they may be suddenly opened. The said collar and spring being retained in said mortices, by means of the box, D, which couples the screw and two levers together, in the manner shown in the drawings, it being impossible for them to separate so long as the box retains its proper place. This box, D, has two legs, *h h*, braced at their bottom by the brace, *i*, which has a number of holes, *j*, cut through it for the claws to work in, as seen in fig. 2; this trace rests on the sole, as seen in fig. 3, and keeps it down, the levers passing in and out between the legs, *h*, *h*, as seen in figs. 1 and 3. E is the left-hand screw for moving the levers in and out; this screw working in the thread, *k*, cut in the top of the box, D. It is attached to the levers in the manner shown in fig. 2. This forms a very useful as well as effectual instrument for shoemakers; it is one of those labor-saving machines which is required by good workmen.

Further information may be obtained by letter addressed to Safford, Brooks & Co., Boston, Mass.

SELF-LOADING CART.---Fig 1.

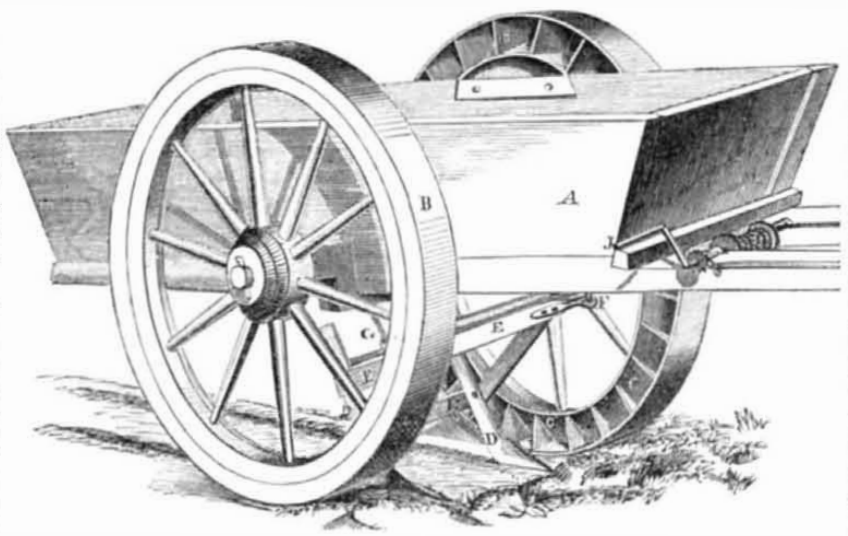


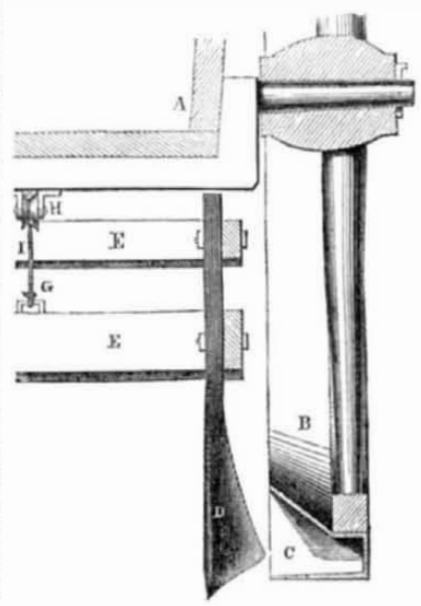
Figure 1, in the annexed engraving, is a perspective view, and figure 2 is a transverse vertical section of the loading apparatus, for a new and improved self-loading cart, invented by Samuel Parks, and Francis C. Rue, of Warren, Illinois.

The cart is so constructed that two plows with mould-boards, turning in opposite directions, passing inside the wheel and near its track, raise the earth and throw it into a series of buckets formed in the inside of each wheel near its periphery. The wheels by their revolution take the earth, thus thrown within them, upwards, by their revolution, to the top of the box, into which it falls, over an inclination of the bucket, and an inclined slide plate upon the top of the box.

A is the box; B the wheels; C the buck-

ets, and E E an adjustable frame to hold the plows, D D, and by which they may be raised and lowered at pleasure by means of a cord I, wound upon a pulley in front of the body of the cart, extending over a pulley, H, and attached to the frame, E, at G. This frame is moved up or down by turning the crank, J, upon the front puley shaft. This shaft has a ratchet upon it, by means of which the plows may be adjusted to any desired depth of cut, being made secure to the adjustable frame by bolts. This frame is prevented from moving backward by a hook and staple, F, attached in any permanent manner to the under side of the body. One end of the buckets, C, is inclined to the external side of the periphery of the wheel, so that when the dirt is brought above the body of the cart, it slides down an inclined plane, upon an inclined plate fixed upon the top of the box, which is fitted up to the inner face of the wheel. From this plate the earth slides into the box. The axle, main parts of the wheels, body and tongue, or shafts are constructed in the usual manner. This is a very simple arrangement, and should be noticed by farmers and others interested.

Fig. 2.



Further information may be obtained by letters addressed to the inventor.

Saws without a Saw Sash.

An improvement in the mode of hanging saws without a saw sash, and by which any amount of strain may be given them, has been constructed and the requisite steps taken to secure a patent. This improvement is the invention of Charles Burleigh, of Fitchburg, Mass. The manner in which he accomplishes this object is by attaching to the upper saw head two straps or chains, passing over straining and stationary pulleys attached to the upper part of the bed frame. These straps or chains also passing under stationary pullies beneath the saw, and are attached to the lower saw head or block. Levers may be substituted for the pulleys, and the cords or chains attached to the top of the upper, and bottom of the lower saw head, and to the ends of the levers; by this arrangement of the inventor the saw may be perfectly strained, and the weight and friction attending the working of the ordinary saw sash or frame avoided.

Improvement in Cultivators.

An improvement in these useful implements of husbandry has been made by Samuel Churchill, of West Henrietta, N. Y. The nature of the invention consists, in a peculiar manner, of elevating and depressing the frame which holds the shares, and the shares themselves, by means of which they may be made to penetrate the earth the required distance, and make deep or shallow furrows, as desired, or be raised, and kept entirely from the earth when the implement is being drawn from one locality to another. The mode adopted by Mr. C., to accomplish this object is by means of levers and connecting rods or stirrups attached to the frame, which are under the immediate control of the driver. Measures have been taken to secure a patent.

By the late news from Europe it is supposed that war is not far distant between Russia and Turkey.

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Scientific American

NEW-YORK, JUNE 25, 1853

Industrial Worlds' Fairs.

The most repulsive aspect in which men can be viewed, is in deadly strife—one man seeking to destroy the life of another—and yet what is history but a series of descriptions of massacres, battles, sieges, and cities laid in ashes; despots and mighty conquerors with their butchering hordes pass in glittering array from page to page. Man appears to be the most viscious of all animals in respect to the wanton destruction of his own species. Hatred and strife, because of the evils which they entail should be avoided by all wise men and all enlightened nations. In order to accomplish this object, the spirit of mutual good will should be generally cultivated. As a means of accomplishing this end, we hailed the "World's Fair" of 1851, in London, as the grand pioneer of a series of such exhibitions, which would rotate triannually among all the civilized nations of the earth, and which would tend to bind them closer and closer by the fraternal cords of an enlightened self interest, and honest emulation to excel in the arts of peace. Our hopes respecting such future results are now exceedingly faint. The prospect of a World's Fair, one worthy of the name in France in 1855, in America in 1858. and so on rotating among all the enlightened nations of the world, as we at one time anticipated, will not, and cannot, we are sure, be realized. This year there are in two different and separate countries, two Worlds' Fairs in name, but only local *affairs* in reality. One is now open in the city of Dublin, Ireland; the other is *to be* in New York City. The Irish Crystal Palace is said to be exceedingly creditable to the people of Dublin, but we have seen no illustration of it excepting that funny one in the New York Daily Times, consisting of five o's, all in a row. The New York Crystal Palace has yet to earn a good name if it can. We, however, consider that the Crystal Palace of Dublin, and especially the one in our own city, barriers to future World Fairs. We hope we may be mistaken, but it is not possible that nations can unite periodically in great industrial exhibitions after spending their strength and wealth in disjointed and extrordinary local efforts. We do not allude to annual State and county industrial fairs, as these are not attended with great expense to exhibitors, and rather serve to fit them for successful competition among the nations; we only allude to very expensive fairs like the New York Crystal Palace, which we consider anything but honorable to our *country*, as it blocks up the pathway to a future Worlds' Fair in America, one worthy of its greatness, and the genius and skill of its enterprising people. Let us look calmly at the case as it stands, and see if we have not good reasons, as lovers of our country, for feeling deeply on this subject.

The New York Crystal Palace is the property of a joint stock company composed of merchants, lawyers, and stock-jobbers. It was projected by the the American Commissioner to the Worlds Fair of 1851, and was designed for money making objects; in fact, the project has been looked upon as such an excellent speculation for paying good dividends, that the stock has been running up and down from par to seventy per cent above it. It has been represented abroad as a World's Fair—a national exhibition, instead of the fair of a mercantile company, in order to make it highly successful, hence the Queen of England has appointed a Royal Commissioner to represent her Court in the person of the Earl of Ellesmere, who has come to our shores in a fine frigate appointed for that purpose, and with a brilliant staff of joint Commissioners consisting of Charles Lyell Bart, and Professors Wilson, Dilke, Wallis, and Whitworth—all distinguished men in the pursuits of science. These men were no doubt appointed with a perfect understanding that they were coming to a World's Fair—under national patronage—instead of the Crystal Palace of a mercantile company. They no doubt expected to find a fair worthy of the spirit of our people, one that would be a faithful index of our country's genius and power; but instead of finding a magnificent and large structure corresponding in dimensions with our great population—twenty six millions—they have found only an unfinished but neatly designed building, placed so unfavorably that it is dwarfed by a neighboring water reservoir, and surrounded with dust, dirt and groggeries. We hope that when the exhibition opens, a favorable impression will be made upon those distinguished foreigners who have come here to view the handiworks of our people.

At present things cannot but make a most unfavorable impression upon them—but neither our government nor our people are responsible for any disappointment in their expectations.

Present Condition and Temperature of the Planets Jupiter and Saturn.

James Nasmyth, an ingenuous engineer—inventor of the steam hammer, &c., an excellent astronomer, draughtsman, and painter, has communicated to the Franklin Journal a copy of a paper read by him before the Royal Astronomical Society, of London, on the subject indicated by the above caption. He assumes the hypothesis of the original molten condition of the earth to be established, and going back he attributes the evidences of ancient deluges to be easily explained by the cooling of the earth, the condensation of water, and the falling in from time to time of the earth's crust towards the centre as our globe cooled. There was a time, he believes, owing to the heat of the globe, when no water could rest upon our earth in a liquid form, but as the crust of our globe cooled, some parts sunk down, the waters were condensed, and thus seas and lakes were formed. He believes that the conditions of cooling and condensation are now going on in Jupiter, and that Saturn is so hot that no water rests upon its bosom, but surrounds it in vapor, of which her rings are formed.

Mr. Nasmyth's views may be correct and they may not; they do not at least explain all the deluge phenomena on our globe, nor can they answer all the objections which may be brought against them. For example, his hypothesis supposes that all the matter of which the sun and all the planets is composed was once connected in a molten state, and that the sun is still a molten mass. Now if Mr. Nasmyth is correct, how does it happen that against all the laws of cooling bodies—the earth—far in the inside of Jupiter and Saturn, cooled before these planets. The only answer given is that these bodies are so much larger than the earth; but that is not a sufficient one, as Jupiter revolves on his axis in 9 hours, 56 minutes, and being twelve hundred times the bulk of the earth, his surface velocity is more than twenty-four hundred times that of the earth; consequently his cooling action is exactly so much greater than that of the earth. His theory also cannot account for the absence of water in the moon, but would give seas and lakes to that satelite. An inhabitant of the moon, if there were one, and he a plutonist, would come to the conclusion by Mr. Nasmyth's method of speculation, that our planet was in a molten state now. Lieut. Maury in his description of the "Equatorial Cloud Ring" says:—"A belt of equatorial calms and rains encircle the earth, were the clouds which overhang this belt luminous, and could they be seen by an observer from one of the planets, they would present to him an appearance not unlike that which the rings of Saturn do to us."

Here is a phenomenon explained, which in Jupiter and Saturn would go to prove those planets to be in a different condition from that set forth by Mr. Nasmyth.

Paid Fire Department.

The "Nonpareil," of Cincinnati, says the system adopted by that city, of paying the fire department, works admirably. It has proved as efficient as the volunteer system, and is attended with perfect harmony, economy, quiet, and order. It is stated that they have used the steam engine with entire success. Our readers will recollect we gave a concise description of this engine but a few weeks since. We understand it is the design now to construct a system of telegraphic communication to give notice of fire. We have been aware, for some time, that Cincinnati was taking the lead in her ample system of security from fire; when will New York show like signs of spirit and philanthropy. The firemen of New York City are noble hearted, or they would not labor with such zeal as they do, and with so little encouragement.

Lime Water—Cure for Carbonic Acid Gas.

A correspondent (Wm. Collier) of the "London Mining Journal" imparts a piece of valuable information respecting the beneficial effects of lime-water to cure persons affected with carbonic acid gas. He states that two of his workmen were employed to clean out a "carbonator,"—a large iron cylinder, 15 feet deep and 8 feet diameter, which was used at his chemical works, and through which a current of carbonic acid gas passed from a neighboring lime-kiln. This current of gas should have been shut off while the men were at work, but in this instance, by some neglect, it was not, so that when one of the men went down to the bottom to work, he dropped on his back, and could not answer the man at the top who was to assist at the operation. The latter made the alarm and said, "the other had dropped down dead." Mr. Collier immediately directed a man to go down and lash a rope around the body of the man at the bottom of the "carbonator," who was then hoisted out, but life appeared to be extinct. He was at once carried to the fresh air, and some fresh lime-water was procured, but it was difficult to get his teeth apart as they were firmly set. At last Mr. C. got his mouth open so as to introduce two tea-spoonstull of the lime-water, which began to exhibit some effect. A little more was applied, which went down his throat, and he immediately, but imperfectly, began to breathe. A third time the lime water was given, as he was now able to drink, and he then began to breathe freely. He was then lifted up and made, with some assistance, to walk round about. In half an hour afterwards, he walked home, went to bed, slept, and next morning felt nothing the worse except his having a slight headache.

This is an important fact in chemistry, as it relates to life, its dangers, and preservation. It is well known to chemists that lime water has a very great affinity for carbonic acid, and whenever it comes in contact with that gas, it immediately absorbs it, forming a precipitate of the carbonate of lime, or if the lime water is kept still in a large vessel the carbonate forms in a thin scale on the top, such as on bleachers' lime and dyer's vats. In the case herein described, the lime water no doubt combined with the carbonic acid gas inhaled by the workman, and the carbonate of lime—an inert substance—was formed; it therefore appears to us, that lime water is an antidote to be employed for those who are injuriously affected with inhaling carbonic acid gas.

Those who work at lime-kilns, where much carbonic acid gas is developed, have a remedy in the material which is continually passing through their hands. Those who labor at charcoal pits, have also a remedy for the injurious effect of the gas of the coal, in a bottle of lime water. To make good lime water for the purpose, it must be prepared from fresh burned lime. Take about half a pound of fresh burned lime, and pour about five quarts of clear soft water upon it; stir up the lime quickly, cover up the vessel, and set it aside for about two hours. The clear should then be poured out into clean bottles and well stoppered, so as to exclude all the air. Hot water is not necessary for this purpose, as lime is as soluble in cold, and a quart will hold about 32 grains of lime in solution. Those whose business leads them to work much over a charcoal fire, will find it for their advantage to have a bottle of lime water always at hand. It would be well for a person who is about to descend into a well to clear it out, first to throw down a few pailsful of fresh lime water, in order to absorb any free carbonic acid gas which may be at the bottom. On three separate occasions we have been severely affected with carbonic acid gas, by working over a large charcoal fire, and although we were well acquainted with the affinity of lime water for it, we never on any of those occasions thought to try it as a remedy. The substances we used were emetics, with the free use of cold water poured upon the head, and by chafing the chest. We hope this notice will direct general attention to this subject; every thing useful connected with the preservation of life—a remedy for an ill—should be known and read of all men.

Events of the Week.

Fuel Consumed—Grain Ground.—As we often have enquiries respecting the amount of fuel necessary to drive a steam engine, according to the amount of grain which the engine will grind, we would state that James R. M. Stewart, of Knox Township, Ohio, has published a statement in the "Steubenville Herald," Ohio, which says that twelve bushels of grain were ground with one of coal consumed in an engine erected by Nathan Cope & Co., of Salineville, Ohio. The engine is a high pressure constructed with some improvements, invented by N. Cope, an excellent engineer. His engines, we have been informed, are the most economical of any erected in central Ohio.

Tea Culture in America,—The "Rochester American" says that a gentleman who has carried on both the culture of tea and the manufacture of tea from their leaves, for years, and some of the time employed two hundred men at the work, has left that place, after an extensive examination of the soil and climate of the South, for China and the East Indies, expressly to import a stock of young plants, superior to those cultivated by the late Dr. Junius Smith, at Greenville, South Carolina. We have no doubt but the plant can be cultivated in some of our Southern States, but the question is, can it be cultivated as economically as in China. We cannot tell; nothing, however, surpasses a fair trial in testing the question. There can be no doubt but a very superior tea can be cultivated in our country from any which we now get from China, as we have been creditably informed, by some who know the fact that none of the first quality comes here.

A Reform Carried.—On Tuesday, the 7th inst., the citizens of New York voted to adopt the amended charter, and did so with such hearty good will, that out of 40,000 votes cast, only 3,000 were adverse to the reformed charter. It is believed that the new charter will cure many of the ills with which our city has been afflicted for a number of years, by unscrupulous magistrates.

What is doing to the Ericsson.

The work of removing the machinery of the Ericsson was completed last evening. This afternoon she is to be towed from her dock in Williamsburgh to the foot of Thirteenth street, North River, for the purpose of receiving her new and powerful engine and other machinery, nearly all of which is in readiness to be placed on board. The shaft, bed plates, and water-wheels are the only parts which have been retained in her. The owners are confident that the Ericsson will be in readiness for sea the 1st of September next."

The above is from the "New York Tribune;" we have quoted it to show that we have no art nor part in making up unfavorable reports respecting the splendid success of the Ericsson. The best thing that could be done with this ship would be to put a pair of good steam engines into her; perhaps this is the very thing that is to be done, but as Capt. Ericsson says, "this is not a proper subject for discussion at present."

Communications.

We are always glad to receive communications from practical men upon subjects suited to the character of our journal; we reserve to ourselves the right to use them or not, but we cannot undertake their preservation. A copy should always be kept by the writer who desires to preserve his communication. None but those familiar with the details of editorial office can understand the difficulty in always taking good care of manuscript.

The English papers speak in glowing terms of the "North Star," Capt. Vanderbilt's steam yacht. Her performances across were excellent. Her over-head engines were the subject of severe criticism—on the whole not unfavorable. Her hull was pronounced to surpass that of any English steamer for beauty and originality.

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Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JUNE 14, 1853

CUTTING TENONS—By C B Fitch, of Galena, Ill : I claim the method de cribed of cutting tenons by means of the scoring and V-shaped cutter that cuts the square shoulder and point, and at the same time scores the side of the tenon, when this is combined with the lancet shaped or other finishing cutter, for removing the material left by the scorers, as specified

HARVESTERS OF GRAIN AND GRASS—By Wm. G Huyett, of Williamsburg, Pa : I claim the peculiar manner of arranging the two sets or series of knives B and C, the knives, B, being of triangular form or saw shaped, and having a reciprocating motion, and the knives, C, working directly over the knives, B, said knives, C, being attached by pivots to the outer ends of the teeth, and having an opposite reciprocating motion communicated to them, at their inner ends, by the lever and cross bar, by which arrangement a drawing cut is obtained and the knives effectually prevented from clogging or choking, by the grass or straw.

STOVES—By S. S. Jewett & F. H. Root, of Buffalo, N Y. Ante dated Dec 14, 1852 : We claim the combination, in a stove or grate, of the fire-place or furnace with a sliding door or doors, to close the front of the fire place, and a recess in one or both of the jambs of the fire-place for the door or doors to slide into, and be concealed from view on the outside and be insulated from the fire and smoke within, this recess being a separate compartment open only where the door enters, and only of sufficient capacity to receive the same, as set forth.

MOP HEADS—By Harvey Murch, of Lebanon, N. H : I claim an improved mop head, composed of the fixed cross head, which has grooves in its lower side and end, in combination with the sliding binder that terminates in a notched shank, and passes through the loop on the handle, which serves as a detent in consequence of the action of the spring on the under side of the said shank, as set forth.

METAL TUBES—By Geo. F. Muntz, Jr., of Birmingham, Eng Patented in England May 8, 1852 : I claim the mode or process of manufacturing a metallic tube of Muntz's metal, or other like metal or composition of metals, viz., by first casting the metal in a short tube ; next heating it as described, and rolling it flat, and elongating it at the same time ; and, finally, opening it out and removing the surplus portions or fins, and reducing it to its final form in transverse section, as specified.

SELF-WAITING DINING TABLES—By Lea Persey, of Patterson, Pa. : I claim a self waiting table constructed and arranged as described, viz , having an endless band situated beneath the table and kept in constant motion during meals, by any power applied through the crank or other means, to which a band is firmly attached at convenient distances apart, guiding carriers, &c., which pass up through, and are supported by small railway trucks, &c , and move in guiding apertures in the top of the table, and up on the tops of which are placed waiters, whereon dishes are put and constantly conveyed around, before the guests on both sides of the table, in combination with the said endless band conveyers.

I also claim an additional shelf or second table, over the central portion of the table, above the waiters, for the purpose of holding castors, &c , which do not require to be frequently moved or replaced, as set forth.

MORTISING MACHINES—By Fergus Purden, of Baltimore, Md : I claim a divided bed, so constructed that it can be adjusted to suit the width of the mortise to be cut, so as to prevent the side of the mortise from being splintered by the cutter, or chips when they are forced through and driven out on the underside, as described.

BRICK MACHINES—By A H. Sampson, of New Orleans, La : I claim the box or reservoir of plat forms with the carrying chains or their equivalents provided with suitable projections for catching drawing forward, and carrying immediately underneath the delivery follower the boards or platforms for receiving the pressed brick, and by which they are conveyed out of the machine, as described.

COPYING PRESSES—By E H. Smith, of New York City : I claim, firrt, the employment of the hand lever to operate the pressing platen, through the agency, or by means of the sliding transverse bar, or its equivalent, in combination with the adjustable stop, or any other mechanical device substantially the same

Second, the arrangement of the plates or platens, in such relation to their support and operating mechanism, as to render three of the four edges of each platen unobstructed, perfectly available, and easy of access.

TYPE CASTING MACHINES—By J. J. Sturgis, of New York City : I claim the use of the horizontal mould block rest, in combination with the vertical and horizontal rock shafts and cam for the purpose of obtaining a motion of the mould block as nearly horizontal as practicable, as set forth.

Second. I claim the use of the lever and rod, in combination with the horizontal mould block, rest, and matrix, as set forth.

Third, I claim the use of the matrix holder having a slot in it, to allow of a lifting motion on its center pin, and a notch in its back side for the end of a spring to act against, in combination with the spring, inclined plane, or cam, on the horizontal rock shaft and pin, for holding it, as set forth.

Fourth I also claim the V-shaped bar, secured to an adjustable end plate, attached to the outer end of the lower half of the mould block, in combination with the upper half of the mould block, for the purposes set forth

COOKING STOVES—By G F. Filley, of St. Louis, Mo : I claim, first, the flaring enlargement of the side flues, C and D, from the space above the oven, also the enlargement of the central flues, F and G from the said flue space to the upper end of G, for the purpose of increasing the draught of all the flues and causing a larger portion of heat to be conducted into the flue space, as set forth.

In combination with the flaring shape of the flues C, F, and G I also claim the auxiliary dumb flue which rises from the flue space to the hearth plate, and thence is continued immediately under the fire chamber and up the back of the same by which another portion of heat from the fire chamber is conducted by radiation and circulation, into the flue space, for the purpose of aiding in giving an increased draught to the stove, and in raising the temperature of the front end of the oven bottom to the required degree for baking purposes, as set forth.

MANUFACTURE OF GLASS—By Jas. M Brookfield & E V White, of Honesdale, Pa., and Jacob Faatz, having been decided to be a joint invention with said White, the said Faatz & White, assignors to A K Hay & J M Brookfield : We claim the application of a blast, and anthracite coal as a fuel, in the manufacture of glass, as set forth.

STEREOTYPE PLATES—By J. L Kingsley, of New York City : I claim, first, the process of expelling air from the surface of the type when forming the mould and from the surface of the mould when forming the plate, as set forth

Second, I claim the method described or its equivalent of dressing, bevelling or thickne sing the moulds and plates when made of gutta percha or compounds that run so that all the plates made shall be invariably of the same thickness, as set forth.

MANUFACTURE OF PLATE GLASS.—By J. J. Greenough, of Boston, Mass : I claim, first, manufacturing plates of glass by causing the glass while in a plastic state, to pass between two or more pairs of rollers, as set forth.

I also claim embossing the surfaces of plate glass, by passing it between embossing rollers, as described.

And lastly, I claim suspending plates of glass by their upper edges, after they have been formed, while annealing so as to keep them in a perfect plane, without resting on a bed.

RE-ISSUES.

LUBRICATING COMPOUND—By Patrick H. Devlan, of Reading, Pa.: I claim the combination of caoutchouc or other similar gum, with animal or vegetable oil or fatty matter, as specified, applicable as a substitute for oil in lubricating machinery and for other purposes.

APPARATUS FOR OPERATING SHUTTLE BOXES OF LOOMS—By J A Bowie & Chas Carr, of Philadelphia, Pa (assignees of Robt B. Goodyear) Ante dated Sept. 13, 1848. Re-issued June 14, 1853. I claim the employment for the purposes of weaving, of an index plate, having movable and adjustable pins projecting at different distances from the face of said plate, in combination with the shoe, or its equivalent, having projections corresponding to the different length of pins, for the purpose of raising and falling, the shuttle boxes to correspond with the pattern desired to be formed, as described.

A New Car Ventilator.

One of our daily papers thus describes a method of car ventilation lately introduced on the Buffalo and New York Railroad, which is the invention of Dr. Foot, of Buffalo :—

"In the centre of the car there is a box about four feet high, by two feet and two and a half in its dimensions. In this revolves a fan wheel, on the circumference of which are teeth about half an inch long. This wheel moves in water to the depth of the teeth, and of course keeps a thick spray in the box when the car is in motion. The wheel is driven by a belt which connects with the car-axle. The air is sucked into the box at each side by the motion of the fan, which forces it through the spray into a conductor, which connects in several places with the car by means of ventilators, but in its passage through the spray it loses its dust and comes up pure. The car windows are to be shut in very dusty weather, and the air for breathing, pure and cool, passed through water, is to be thus furnished. The press of air made by the fan is so great that it will hold a hat suspended over one of the holes out of the top of the car. The experiment was successful to such a degree that it ought to be examined by competent judges."

[This plan strongly resembles one described on page 340, Vol. 7, Scientific American, invented by Harvey Law, of this city. The description to which we refer says: "Mr. Law remedies the evil of dust entering the cars by bringing the air in contact with revolving moist surfaces in troughs below the cars, and they take up all the sand and dust out of the air which is afterwards driven through the cars cool and pure." The idea of extracting the dust from the air to supply railroad cars by drawing it through the water, belongs to Mr. Law, although the same principle was patented to James Cummings in 1848, as applied to Spark Arresters.

ANOTHER CAR VENTILATOR—Another mode of car ventilation has been introduced on the Naugatuck Railroad, Conn., by Messrs. Atwood & Waterbury. The passenger cars of a train are all thrown into one long saloon by means of a flexible cloth or rubber platform, and, the windows being kept closed and the train opened at the rear, a strong current of air is received just over the engine through a pipe or bag, as wide as the train, and some six to twelve inches deep, which passes in at the top of the front car, and so along through all the cars, and out at the rear.

Flying Machine.

We learn that nearly all the work of Mr. Porter's Aeroport is finished, and that in one month it could be made ready for its voyage in open air. A *little* more money, however is needed to complete the arrangements, and a liberal interest is promised on the investment, the *proprietor* having no doubt whatever about the success of his aerial navigator. But the people at large have not the same degree of faith that Mr. Porter has, and therefore are reluctant to take part in the enterprise.

The Rotary.

On Saturday, June 11, we had the pleasure of making another trip up the North River with Ebenezer Barrows, Esq , in his beautiful little steamer "Rotary," and from her performance on this occasion, we see no reason to alter the opinion expressed in No. 3, of the present volume, which was written after the first trial trip of this little boat last summer. The boat has made frequent trips since that time, and the engine, although nothing has been done in the way of repairs, and not a screw has been disturbed, works even better than on that occasion, when we felt called upon to express our admiration of the smoothness, ease, and silence of its movements. Not a sound being audible but the escape of the exhaust steam—the engine working on the high pressure principle. It is believed that the packing fits better now than when it first started. It must be remembered that this is the first engine ever constructed on this principle, with the exception of one so small as to be a mere toy, and though it has been usual to make allowance for the defects of a first machine of peculiar construction, it is not necessary in this case to do so. In our first notice of the "Rotary," we gave the dimensions of the engine, recapitulation of these is therefore unnecessary, further than to remark that the whole area of the steam surface operated upon at one time, is but 54 square inches, and the average pressure of steam on this occasion was certainly not more than 60 lbs. per square inch ; we should think much less, but as it varied considerably during the trip ; we cannot be positive. It must be admitted that the above area of steam surface is very small to propel a boat of 70 feet length and proportionate beam, draught, &c., yet during some portions of the trip, the speed obtained, considerably exceeded ten miles per hour, the engine at the same time working pump and blower. The consumption of fuel is very small, we are informed about 110 lbs. per hour. One of the most remarkable features in the operation of this engine is, if we may so express it, its perfect obedience to command, the reversal being effected by simply changing the position of one handle, which changes the direction of its revolution without any clatter, or indeed the slightest perceptible sound or jar. The trips made by the Rotary have established the fact that this engine performs its duties with a very small expenditure of fuel, that its operation may be controlled by a child, and that it will run for a very long time without repairs. As it may be constructed cheaply in the first instance, it may be said to possess all qualities desirable in an engine. See engravings of this engine in No. 4, Vol. 8, Scientific American.

Maryland Institute at Baltimore.

The Sixth Annual Exhibition of this Institute will be opened in the City of Baltimore, on the 3rd of October next. Articles intended for the Exhibition will be received on Monday the 26th of September, and those designed for exhibition only will be received during that week, but those deposited for competition and premium must be entered before Thursday night, Sept. 29. Particular information in regard to the arrangements and management of the Institute may be obtained by addressing John S. Selby, Actuary of the M. M. I., Baltimore, Md.

Our readers are well aware of the high character that this Institute sustains, and we have no doubt that this display will equal if not surpass that of any former year—it will be one of unusual interest and utility. The officers and managers are men well qualified to give satisfaction to exhibitors, and they will use every precaution to give confidence and insure harmony and good feeling. The Hall in which the Fair will be held, our readers will remember, was described on page 32, Vol. 7, Scientific American ; it is a spacious and beautiful edifice, and will probably accommodate all who may wish to offer the products of their skill, ingenuity and taste for public observation. The Exhibition will close on or before Oct. 31.

A convention of some of our Southwestern States, just assembled at Memphis Tenn., has declared by resolution, that Cuba should be ours of a necessity.

Rock salt is said to have been found in the neighborhood of Rome, Ga.

TO CORRESPONDENTS.

J M G , of N. H.—We have frequently seen straw cutters constructed precisely the same as yours, it is not new ; the indicator is the same as Ely's, which was invented four years ago Morse & Mansfield's car axle involves the same device as is embraced in yours for wagon's, the difference in application is not patentable.

R J. M , of Savannah—We are not positively sure that either invention named in your letter could be patented The patent fee in each case would be $500 ; no one but the inventor could take the patent.

H. B , of N. Y —We do not see why your improved valve would not work well. We are doubtful about its possessing any patentable features, this you can determine by an application for a patent.

W. B , of Geo.—We have seen an electro-magnetic machine constructed upon the same principle as yours, only the wheel was on a horizontal shaft, and the stationary magnets secured in a frame around it ; the magnets on the arms were permanent, however, and in this respect differed from yours, but we believe you could not obtain a patent.

H. M D , of Mass.—We like Bourne best, and recommend it, but examine the two for yourself :—Hodge is not out of print.

J. C. B., of Wheeling—We would not like to give you an opinion without having practically tested the two kinds of zinc, which we have not done ; we consider the Jersey zinc equal to any other ; this opinion is founded on examination merely.

G. V. McD , of Ct —The rotary cutter and mould would be an infringement of Blanchard's patent.

J. H , of Ill.—Yours will receive attention next week.

Mr. J. A C., of Ohio—Yours came rather late for this number.

J. A. S., of Pa —What you call the backward current is the effort of the divided water to unite, which, in our opinion, does not affect the action of the paddles ; great objections can also be urged against extending the paddles from the side of the ship.

J. J. P., of O.—The number of patents which have been issued on straw cutting machines exceed one hundred; the claims of all of them would cost you more than you would feel willing to pay, undoubtedly ; our charge for copying claims is $1 each.

E. B , of Wis.—The Wilson Sewing Machine, illustrated in No. 38, present Vol , is just the machine you require for your kind of work. The objections you advanced to the other machine, are obviated in Wilson's.

H. W. O., of Ct.—We are not practically acquainted with any substance that will unite two pieces of horn together, water-proof; still it is our opinion that common gutta percha cement will do it; try the experiment.

R. S , of Conn.—We have never seen your plan carried out, but the exhaust steam has been introduced into the furnace. Your plan is good, and does not infringe on any patent, but we do not believe it patentable.

J. G , of Ct.—Use lac dissolved in alcohol.

J. J. N., of Ohio—The best thing you can do is to communicate with J T. & P , and state all the circumstances, and if you could find some person who has tried one, his experience would be of service to you ; we could say nothing about recommending it or any other, excepting to say it was a good one in principle.

J. C , of R I —We have not the slightest confidence in your alleged improvements in balloons as embracing anything useful ; if you have a different view, the only way is to build and test the invention.

M. H , of N. Y.—There is something in your device for cutting grain, which appears to be new and patentable. We think you are justified in making an application for a patent.

C. T M , of Miss.—A model could not be made from the daguerreotype.

J. P., of Ky —Your sketch we have received, and we shall attend to the examination at once.

Money received on account of Patent Office business for the week ending Saturday, June 18 :—

C. S., of N. Y , $25 ; G. W. C., of Ga ; $30; W K P., of Mass $55 , W Mt S , of N Y , $100; S J. of N Y., $30 ; D A M , of Pa , $55 ; H C , of N Y , $20 ; A E. B. of R I , $50 ; B H. B , of Ct , $25 ; I W. McG , of Pa , $30 ; B & W , of Ct , $20 ; W. T. B M , of N. Y , $125 ; J A. of O , $25; A. B of Miss , $35 ; A. T. C , of Pa , $20 ; J. W M , of Ala , $55 ; C F B , of R I , $25 ; S & McK , of N. Y , $25 ; S C., of N. Y , $25 ; A. C R., of N. Y., $32 ; G. W. T., of N. Y., $55.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday June 18 :—

D A. M., of Pa ; H. C., of N. Y. ; C. F. B , of R. I. ; S. B. & Co., of Mass ; B. H. B., of Ct ; J B. C., of Ohio ; J. A , of Ohio ; S. C , of N. Y. ; S. & McK , of N. Y.

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ADVERTISEMENTS.

THE RIDER WATER WHEEL—Is extensively made by G. T. McLAUTHLIN & CO., sole assignees, at Plymouth, Mass, office in Boston at 108 State st. We know of no wheel so admirably combining, simplicity, power, durability, and true economy in the use of water: it is adapted to all descriptions of work, and to high or low falls, with or without backwater. More Agents wanted. 1*

North Easton, Mass, Aug. 3, 1850.

Mr. Caleb Rider, Sir: Having had one of your water wheels to carry a grist mill, we will say that it fully sustains the character given it by the Robbins Cordage Co., and others, and is a cheap, durable, and powerful wheel, not liable to clog or get out of order; we use the wheel to grind shovels as well as for the mills, and we find, when we want a quarter of the power that the wheel will afford under a full gate, that the gate hoisted one quarter the way will give a fourth of the power, or very nearly so; it has eleven feet head and fall; we prefer it to the breast-wheel, which we previously used for the mill. Finally, we are so well pleased with it, that we wish you to furnish us with another to carry a saw mill.

1* OLIVER AMES & SONS, Shovel Mfrs.

GWYNNE'S CENTRIFUGAL PUMP—J. STUART GWYNNE—Dear Sir: We take pleasure in saying that your Centrifugal Pump works to our entire satisfaction and that we consider it one of the most durable and economical pumps in use.

JOHN R SMITH, Rev. E. SMITH.

Rus-ell, January 29th, 1853

For drainage irrigation, mines, and manufactories, and all situations requiring powerful pumps, the above are the best in the world, being cheaper, more durable, and discharge more water with the same power than any other pump. Manufactured and sold by the Union Power Co. of U. S. Office 49 Dey st, New York. 1*

MODELS—Of all kinds of Machinery made to order. Address JNO B. FAIRBANK, 128 Fulton st, Scientific American Office 41tf

WANTED—A situation in a Machine Shop, as Draughtsman or Superintendent, by an experienced engineer. Adderss "Draughtsman," 450 Philadelphia P O 1*

STEAM ENGINE FOR SALE—7 horse-power, new, and in good order: also a cylinder boiler for the engine; it has been used but is in good condition; price $500; the Engine is worth the money Address MUNN & CO. Scientific American Office

PORTABLE FORGE AND BELLOWS—THE Subscriber, successor and sole manufacturer of Queen's Patent Portable Forge and Bellows, offers the same to the public as the best in use for blacksmiths, machinists, boiler makers, coppersmiths, shipping, railroads, mining, quarries, public works, &c., &c; also a superior jeweller's and dentist's forge, and which is frequently used in laboratories for chemical operations These forges are constructed with slides for closing up or they can be placed in any possible position required for safety, and the entire escape of all smoke and gases to the chimney when used in-doors, also prevents any interference to the fire by wind or rain, when used outdoors or upon shipping Circulars containing full particulars and certificates will be forwarded upon application FRED P FLAGLER, Wholesale and Retail Dealer, 210 Water st N. Y. 40 4*

A GOOD CHANCE FOR MANUFACTURING—A Water Privilege of ten feet fall, on a never-failing stream, with four acres of choice land, in the town of Cornwall, Orange Co, N. Y, 5 miles from the North River, and three miles from the railroad depot, and on the line of survey of the Albany and Hoboken RR. For particulars inquire of John J Vanduzer, 184 Canal st, N. Y., or John Orr, on the premises. 40 13*

NOTICE TO CONTRACTORS—Huntingdon and Broad Top Mountain Railroad Proposals will be received at the office of the Engineer, in Huntingdon, Pa, until the 28th June, inst, for the Gradation and Masonry of 35 miles of the above Railroad Plans and specifications will be exhibited in the office for three days previous to the letting.

40 2* S. W MIFFLIN, Engineer.

UPTON'S GLUE—This celebrated brand is noted for its great strength and durability, having been proved by Chickering and Gilbert, the great piano makers of Boston, to be the only glue that will stand in all climates. For sale in barrels and cases by WM B. PARSONS, Sole Agent, 290 Pearl st cor. Beekman, N. Y. 40 8*

NORRIS WORKS, Norristown, Pa The subscribers build and send to any part of the United States, Pumping Hoisting, Stamping and Portable Engines, and Mining Machinery of every description THOMAS, CORSON & WEST 40 1y.

MASCHER'S PATENT STEREOSCOPES—Illustrated in No. 37, Sci Am, are manufactured and for sale wholesale or singly, as samples by the inventor, at 408 North Second street, Philadelphia; also for sale by the Scovill Manuf'g Co, 57 Maiden Lane; Meade & Brother, 233 Broadway, N Y; Jno Sawyer 123 Washington st Boston; Myron Shew, 118 Chestnut street, Philadelphia; Wesing No 2 North Liberty street, Baltimore; Dobyns & Co New Orleans, and Scammon & Co Chicago, Ill The prices are, for one-sixth size, $12. $15, and $30, and one-quarter size $15, $18, $26, $24, $33 and $36 per dozen, furnished with plate glass, and some with black, others with fine gilt borders, and preservers 40 2*

NORCROSS ROTARY PLANING MACHINE,—Decided by the Circuit Court not to infringe the Woodworth Machine—I now offer my Planing Machines at a low price; they are not surpassed by any machines as to amount or quality of work. Tonguing and grooving machines also for sale, doing one or both edges as desired, 80 machines now in operation Address me at Lowell, Mass,

39 20* N. G. NORCROSS.

MORTISING MACHINE—"Dear Sirs, I received the Portable Mortising Machine about three weeks ago; I have used it, and am very well pleased with it; it is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.

Nashville, Tenn, 1851."

"Since I have been a subscriber to your paper I have purchased one of your Mortising Machines, for which I would not take double its price and do without it. WM M FLEMING.

Elizabethtown, Tenn, Jan 8 1853"

This machine is simple, durable, and effective, and is boxed and shipped for the low sum of $20.

MUNN & CO.

SIXTH ANNUAL EXHIBITION OF THE MARYLAND INSTITUTE, will open at the unrivalled Hall of the Institute, in the city of Baltimore, on Monday the 3rd day of October, 1853, where articles for competition and premium will be received from Monday, 26th, to Thursday 29th of September, inclusive; after which deposits will be entered for exhibition only To this Exhibition the artists, inventors manufacturers, &c., of the entire union, are cordially invited to contribute. The central location of Baltimore, and the high reputation of the Maryland Institute Fairs, will afford them very great advantages in introducing their articles to the public, as there will congregate a great number of persons from every part of the Union. Circulars and any information required will be promptly furnished by application, post paid, to John S Selby, Actuary. THOS. TREMBLE, Chairman of Exhibition Com. 40 6

MCALLISTER & BROTHER—Opticians and dealers in mathematical instruments, 48 Chesnut st. Philadelphia Pa. Mathematical instruments separate and in cases, Protractors, Spacing Dividers, Drawing Pens, Ivory Scales, Tape Measures, Salometers, Bourdon Steam Gauge, Spy Glasses, Microscopes, Hydrometers, &c., &c. An illustrated and priced catalogue will be sent by mail free of charge. 39 6m*

CAUTION TO MANUFACTURERS of Wrought Iron direct from the Ore.—All persons are cautioned against infringing the patent of C S Quillard, granted Dec. 23rd, 1851, "for combining one or more reverberatory furnaces with a chimney or stack, containing in its lower part a deoxidizing vessel, in such manner that it and the contained ore and carbonaceous matter shall be heated by the flame and escape heat from the reverberatory furnace or furnaces" The undersigned are prepared to dispose of rights to use the same on liberal terms Charles M Dupuy, Jr, Rondout, Ulster Co, N. Y; C V Quilliard, 48 West 29th street, New York, assignees. 39 4*

KRUPP'S (London Council Medal 1851) CELEBRATED CAST STEEL—Of any dimensions, warranted superior to any other for Platers and other Rollers requiring hardening; also for hydraulic and other pistons, railway axles, and shafts for steam engines, &c &c. This cast steel admits of welding without borax with the same facility as iron. THOS. PROSSER & SON, 28 Platt street, New York. 39tf

THE WATER CURE JOURNAL—A New Volume—Now is the time to subscribe—Published monthly, in a beautiful quarto Illustrated with engravings, exhibiting the Structure, Anatomy, and Physiology of the Human Body, with familiar instructions to learners It is emphatically a Journal of Health, designed to be a complete Family Guide in all diseases.

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SCIENTIFIC MUSEUM.

Old Civilization---Layard's Nineveh.

Many shallow philosophers entertain the notion that man commenced his existance as a wild savage of the woods, and that his progress has been step by step to his present elevated position in modern civilization. No man entertaining such opinions can retain them after reading Layard's Nineveh and Babylon, a work recently republished in excellent style by the great American house of Harper & Bros. of this city. At a time far anterior to that of historical record, excepting what we have in the Sacred Scriptures, there were races living and dwelling in Asia, who were highly civilized, and who were acquainted with sculpture, architecture, music, and civil policy; a race who built splendid palaces and adorned them with some of the choicest works of art, of a kind which have been thought by many to be but recently discovered. The saw, the shovel, and the axe, instruments in general use among all nations now, were also used by the serfs of Nineveh and Babylon; the speaking trumpet was even known in those days. In the illustrations of this book there is a representation of the mode by which the ancient Assyrians moved heavy bodies. A collossal winged bull is represented to have been placed on a sledge having rollers, and drawn by great bodies of men pulling ropes. Another body of men are represented as assisting with levers, and Mr. Layard remarks that this was the plan he employed himself to remove the same piece of sculpture (which is now in the British Museum.) The old Assyrians were acquainted with making twisted rope, an art of which their descendants are utterly ignonant. The builders of the Assyrian palaces employed large slabs of alabaster, on which are representations of captives drawing these huge slabs, many of which are believed to be the forefathers of the present race of Jews. But however skillful they may have been in moving large stones, it would no doubt have done them good had they been permitted to see how us Yankees make frame houses travel through our streets.

The inscriptions on alabaster slabs and blocks, discovered by Layard, have been translated by Col. Rawlinson and Dr. Hincks, and corroborate the correctness of the Bible, and what is very remarkable, the translations of the stone writing, agree exactly with the sacred text in stating the amount of gold (30 talents) taken by Senacherib, from Hezekiah, King of Judea. A chapter of intense interest to men of science in this work, describes the discovery of arched drains, vases, and kettles of copper; bronze bells, bronze cups; ivory and mother-of-pearl studs, fit for the shirt bosom of a modern beau; a bronze strainer, &c., in short, the Assyrians appear to have been better acquainted with the making of bronze vessels and figures than the moderns. Glass bowls were also discovered, but what is more interesting, is some *picks* and saws made of iron. This metal was long supposed to be unknown to the ancient Asiatics. Among the glass articles discovered was a rock crystal lens, with opposite convex and plane faces. It is the most ancient specimen of a magnifying and burning glass known.

We have long entertained the opinion that savage races are blasted limbs torn from the trunk of a higher civilization, and this book deepens our conviction respecting the correctness of this theory, opposed as it is to the jargon of a shallow, unphilosophical, but declaiming sect of the present day, but agreeing with every deduction that can be drawn from the remains of ancient cities, roads, &c., found in every part of the world.

Artesian Well.

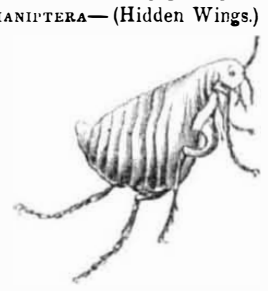
The artesian well on Court House Square has reached a depth of 475 feet. The water now flows from the top, running a stream of about two gallons a minute. The water is excellent, and (which is somewhat unusual at that depth) as cool as ordinary well water The workmen are now drilling through a rock, below which, the skilful superintendent has strong hopes that a copious supply of the genuine fluid will be found.—[Montgomery (Ala.,) Journal.

(For the Scientific American.)

Entomology.

[Continued from page 320.]

V. APHANIPTERA—(Hidden Wings.)



Pulex Irritans.

This order embraces but one family, the *Pullidae*, or Flea tribe. These pigmy tormentors are suctorial, of minute size, have only the rudiments of wings, will drag twenty-five times their own weight, and leap two hundred times their length. The rostrum is setaceous, inflected, and armed with a sting. The Hungarians put them to flight by greasing their linen, which disgusts the vermin; and Queen Christina shot at them with a cannon of liliputian caliber. The jigger or chegre (represented above magnified), is a West Indian species, smaller, but more hateful. It generally attacks the feet (preferring those of foreigners), and nidificates between the skin and flesh, often rendering amputation necessary.

VI. APTERA—(Wingless.)

Podura Villosa.

These parasites connect true insects with the Myriapoda. They undergo no metamorphosis, and constitute two families—the Louse tribe, and Spring-tails. Different species of the former are restricted to particular animals; two infest man. The body is flat, divided into a dozen parts, and fitted with short legs terminated by stout nails. The eyes are almost wanting, and the mouth is like a snout, furnished with a sucker. The female gives birth to 5000 in eight weeks; they are not subcutaneous, and produce the disease "phthiriasis." New Zealanders and Hottentots eat them; and in ancient America a poll tax of lice was exacted—bags of the precious treasure being found in the palace of Montezuma. The legs of the sugar-louse are terminated by long jointed bristles. The abdomen of the spring-tail has no appendages; but its extremity is prolonged into a forked tail, by which the animal leaps. Their scales are beautiful under the microscope, and are employed as test-objects by reason of their delicate markings. Some species are found beneath stones, others on plants and trees; and when congregated they look like gunpowder.

Climate of California.

The climate of California may be divided into three seasons. The rainy or wet season, the season of the dews, and the dry season. in which neither rain nor dew falls. The rainy season commences about the first of December and terminates about the 15th of April. The second season embraces that part of the year when the evaporation is greatest, and the moisture of the earth is converted into dews: this season lasts from one month to six weeks. The dry season includes the summer months, and continues until the rain sets in. California contains as many different changes of climate as can be found south of latitude 42° N. to 23° S. latitude, owing to the present division of seasons, the atmosphere is divided into two kinds, wet and dry. It may be said, however, that the coast wind is more or less humid at all seasons of the year. St. Francisco is exposed during the summer months to damp and chilly winds, whilst the winter brings a mild and wholesome season, with a balmy atmosphere. The interior does not suffer from this influence. The humid atmosphere occupies that part of the year in which the rains predominate, and the season of the dews. The winds generally prevail during the summer S. S. E. in the interior, and on the coast the prevailing sea breezes constitute the chief winds.

The climate, like other countries, may, in process of time, become more genial to agricultural pursuits, and the health of those who have or may hereafter make this State the home of their adoption. Historical facts support this position. The climates of European countries were more severe in ancient times than they are at present. Cæsar informs us that the vine could not be cultivated in Gaul on account of the cold winter. The reindeer now found in the zone of Lapland once inhabited the Pyrenees; the Tiber was frozen over and the country surrounding Rome was covered with snow several weeks together, which rarely happens in our time. The Rhine and Danube, in the reign of Augustus, were generally frozen over for several months of the year. The improvement which is continually being made in the climate of America proves that the power of man extends to phenomena, which, from the magnitude and variety of their causes, seem entirely beyond his control.

At Guiana, in South America, within five degrees of the line, the inhabitants living amid immense forests a century ago, were obliged to alleviate the severity of the cold by evening fires, even the duration of the rainy season has been shortened by the clearing of the country, and the warmth is so increased that fires now would be deemed an inconvenience. "It thunders continually in the woods, but rarely in the cultivated parts." It is probable that in the course of time, and after the settlement of the country, the habitable portions of California may become, in its seasons, more regular and better adapted to agricultural and other pursuits. Should such changes take place as history records to Italy, then indeed is California a favored land. Yet drainage of the dround and the removal of forests cannot be recorded among the causes of increased warmth of the Italian winter.

The elevation of the highest peaks of the Sierras is about 17,000 feet above the level of the sea; Pleasant or Red Lake about 9,000 feet; Pleasant Valley 3,864 feet, and is the nearest habitable place to the mountains. Their mean elevation above the sea will range from 1,000 to 1,700 feet; the mean temperature of the atmosphere, from the best calculations, being about 72°. Fahr.

The fogs in autumn, on the coast, are checked in their advance to the interior of the coast range, thus leaving the dry atmosphere free from these additions. It is a fact worthy of notice in this connection, as well as to establish the positive purity of the atmosphere in the interior, that its effect during night, as well as in the day, upon the human body, invigorates the system, and is so refreshing that persons prefer sleeping in the open air, without other covering than the broad canopy of heaven.

It may be said with certainty, that neither homo, nor idio, nor vegetable, nor animal miasmata exist to any extent that would create disease, and on the whole it may be considered a healthy climate, particularly in those sections where there exists a uniform evenness in the atmosphere. It may be regarded as more pleasant and agreeable than the climate of any other part of the United States.

The above is a condensed statement from an article in the "Western Journal," by Geo. M. Willing, M. D.; we seldom see an article upon this subject upon which we can depend for truthfulness; almost as many ideas exist as there are inhabitants in the new State. The above is probably for the most part correct.

St. Louis Removed to the Country.

Much apprehension, it is said, is now and has long been felt in St. Louis, that the action of the waters of the Missouri, where they enter the Mississippi above that city, will eventually wear away the Illinois shore to such an extent as to force a new channel for the great father of waters, and thus leave St. Louis some five or six miles out in the country. The present flood, as usual, is tearing away the bank, having washed off a mile and a half of the telegraph line near Alton, with all the land on which the poles were planted. The editor of the "Alton Courier" says:—"As much abrasion of the Illinois shore for the next ten years, or even five years, as has been occurring for a few years past, and the lakes and the lowlands above spoken of, will be reached. The Gillham farm is now nearly all swept away, and the old dwelling house, which has already been moved once or twice, will soon have to be removed further back or torn down. Where we rode along in our conveyance, on the public road near this place, some three years ago, is now 150 feet out in the stream of the sweeping Mississippi."

Skylarks.

A colony of sky-larks, forty-two in number, were recently imported from England by a gentleman of Delaware, with the hope of perpetuating the species in this country and thus adding a songster of much renown to our forest choir. The birds flew from the place at which they were released in various directions, and, for the most part, in flocks of three to twelve, alighting mostly within sight, upon adjoining farms.

In all likelihood the experiment will fail as the larks build their nests on the ground and in a country, where snakes and such *varment* are numerous, their eggs and young will be destroyed.

LITERARY NOTICES.

HINTS ON THE DAGUERREOTYPE, etc.—Edited by J. H. Croucher. This work embraces directions for obtaining photographic pictures by the calotype, and energiatype, also upon albuminized paper, and glass, by collodion and albumen, etc, including a practical treatise on photography, the heliochrome process, etc. It also includes full directions for taking pictures by the Daguerreotype process, with the latest improvements in fixing colors. &c., illustrated with engravings, and is a work of great value to experimenters, and indeed all who take an interest in this class of investigations. It is neatly bound; for sale by A. Hart, Philadelphia, Pa.

ELEMENTS OF MECHANISM—Explaining the Principles of the Construction of Machines, by F. Baker, C. E, is a work designed for the use of schools or students in mechanical engineering, and is well calculated to facilitate investigation in this branch of science; the whole is carefully arranged and illustrated with 243 engravings. For sale by A. Hart, of Philadelphia.

THE SPIRITUAL MEDIUM—This is a neat little volume, published by Gould & Lincoln, Boston, and contains some exceedingly curious and rare information. The author is evidently a scholar and fond of reading marvelous works of old and new authors. He believes in a nervous or spirit principle.

PUTNAM'S MONTHLY—For July, is an excellent number, it contains an unusual amount of valuable information, and is illustrated with fine engravings. Published by G P. Putnam & Co., No. 10 Park Place, N. Y., and Sampson, Low, Son & Co., London; price $3.

BOOK OF THE WORLD—We have just received No 10 of this beautiful work; it has four beautiful plates: The Passion Flower, The European Butterfly, and the African Snake are colored plates. It is filled with choice matter. Published by Weik & Wieck, 195 Chestnut st, Phila.

"Harry Coverdale's Courtship, and what came of it" by the author of "Frank Fairlegh," "Lewis Arundel." etc. H. Long & Bro. 43 Ann st. This is a very captivating novel, and will pay perusal from those fond of romantic literature.

"Young Ladies' Keepsake and Home Library," for June, is received; it is a choice number. beautifully embellished. Published by J. S. Taylor, No. 17 Ann st.

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